

**COMMONWEALTH OF MASSACHUSETTS  
BEFORE THE DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY**

Petition of Boston Edison Company, Cambridge Electric	)	
Light Company and Commonwealth Electric Company	)	
d/b/a NSTAR Electric pursuant to G.L. c. 164 § 94	)	D.T.E. 03-100
and 220 C.M.R. §§ 5 <i>et seq.</i> for approval of a new	)	
renewable power supply offering	)	
_____	)	

DIRECT TESTIMONY OF  
ROBERT GRACE  
ON BEHALF OF  
THE CAPE LIGHT COMPACT  
AND  
MASSACHUSETTS ENERGY CONSUMERS ALLIANCE

1   **I. IDENTIFICATION AND QUALIFICATIONS**

2   **Q:     State your name, occupation and business address.**

3   A:     Robert Grace, President of Sustainable Energy Advantage, LLC, 4 Lodge Lane,  
4           Natick, Massachusetts 01760.

5   **Q:     Please summarize your professional education.**

6   A:     I received a M.S. degree in Energy & Resources from the University of  
7           California, Berkeley in June 1993, where I was awarded a University of  
8           California Regents Fellowship. I received a B.S. degree in Energy Studies from  
9           Brown University, awarded in 1985, graduating magna cum laude, and was  
10          elected to the Sigma Xi honorary society.

11   **Q.     Please summarize your professional experience.**

12   A:     I have over 20 years experience as an interdisciplinary analyst specializing in  
13          energy and environment, working with a broad range of stakeholders and a

1       diverse array of functions. Since 1998, as President of Sustainable Energy  
2       Advantage, a service and consulting practice, I have provided technical and policy  
3       analysis of renewable energy markets, supply, demand and market infrastructure.  
4       I have played a variety of roles in developing markets, business opportunities and  
5       infrastructure for bulk renewable electricity supply for clients in the public,  
6       private and non-profits sectors. I have been a frequent public speaker, author of  
7       several key industry reports, business plans, market assessments, power supply  
8       solicitations, and policy white papers. I also specialize in providing technical  
9       support to multi-stakeholder processes probing issues shaping the renewable  
10      power landscape in a competitive market environment. I have provided expert  
11      analysis for several state government agencies, including the Massachusetts  
12      Division of Energy Resources, New York State Energy Research and  
13      Development Authority, Rhode Island State Energy Office, California Energy  
14      Commission, Wisconsin Division of Energy, Massachusetts Technology  
15      Collaborative, and Rhode Island Division of Environmental Management. My  
16      clientele has also included the National Renewable Energy Lab and Lawrence  
17      Berkeley Lab; energy businesses ranging from startups to some of the largest in  
18      the world; customer aggregations interested in the purchase of renewable energy;  
19      and environmental and consumer advocates.

20

21      Prior to establishing Sustainable Energy Advantage, I headed up green power  
22      marketing activities of AllEnergy Marketing Company, the competitive retail  
23      affiliate of New England Electric System, as Director of the ReGen Division,

1       where I was responsible for all aspects of the division. Before joining AllEnergy,  
2       I was a Principal Analyst specializing in wholesale power marketing, power  
3       supply planning and electric industry restructuring for New England Power  
4       Company. Towards the end of my five year tenure at New England Power, I  
5       served as the senior staff person for the wholesale business unit involved with  
6       many aspects of taking New England Electric System through electric  
7       restructuring. Prior to graduate school, I worked for seven years as a Senior  
8       Analyst for LaCapra Associates, specializing in utility resource planning, cost  
9       analysis and rate design, rate design, load management, budgeting, financial and  
10      load forecasting, computer modeling and regulatory support for over 20 electric  
11      and gas utility clients. This work included analytical support of numerous rate  
12      cases in a number of states. My experience also includes brief work as an analyst  
13      for two small energy management/engineering practices. Particular experience  
14      of relevance to this testimony includes:

15      ?? Extensive analysis of renewable energy demand and industry experience with  
16          green power for wholesale and retail clients, as well as New England Power  
17          and AllEnergy, as part of their business planning processes.

18      ?? Work developing infrastructure and programs to support growth of renewable  
19          energy demand, for public sector clients; serving on the Green-e New  
20          England Advisory Board since its inception in 1997, and more recently on the  
21          Massachusetts Technology Collaborative's Green Power Working Group.

22      ?? Extensive analysis of renewable energy supply, including (while heading up a  
23          team supporting the Massachusetts Division of Energy Resources' RPS

1           Advisory Group) managing comprehensive RPS supply, demand and costs  
2           analyses of New England. I have performed similar analyses in New York,  
3           Wisconsin, and California.

4           ?? Providing transactional assistance to several buyers and sellers of renewable  
5           energy, including preparing or responding to solicitations for the purchase  
6           and sale of renewable electricity, and support of contract negotiations.

7           ?? Participating as one of the many architects of the NEPOOL Generation  
8           Information System's Structure and Operating Rules, and continuing to  
9           represent a client as an active member of the NEPOOL Generation  
10          Information System Working Group.

11          ?? Assisting the Union of Concerned Scientists in expanding opportunities for  
12          renewable energy through influencing the crafting of supportive state policy,  
13          including most recently drafting comments in an ongoing docket aimed at  
14          implementing a "green" alternative Transitional Standard Offer.

15  
16          Attached as Exhibit RCG-1 through RCG-4 are my resume; a qualifications  
17          summary; and lists of presentations, lectures and testimony; and a list of  
18          publications, respectively.

19   **Q:    Have you testified previously in utility proceedings?**

20   A:    In public hearings, but not in evidentiary proceedings, with one exception: I  
21          submitted pre-filed testimony in a power-supply case on behalf of the Vermont  
22          Electric Cooperative before the Vermont Public Service Board around 1991.

23   **Q:    Have you testified previously, before this Department?**

1 A: No.

2 **II. INTRODUCTION**

3 **Q: On whose behalf are you testifying?**

4 A: On behalf of the Cape Light Compact (the “Compact”) and the Massachusetts  
5 Energy Consumers Alliance, Inc. (“Mass Energy”).

6 **Q. Describe the relationship that you have to the Compact and Mass Energy.**

7 A: I have no previous relationship with the Compact; I have worked for Mass Energy  
8 since February of 2002 in the role of advisor on development of their renewable  
9 energy business.

10 **Q: What is the purpose of your testimony?**

11 A: My testimony is designed to address the following topics:

- 12 1. Whether NSTAR Green is entering a market void, or improving upon  
13 offerings currently in the Massachusetts market;
- 14 2. Identifying whether the NSTAR Green program, as currently structured,  
15 creates barriers to entry, and assessing the potential impact on competition of  
16 approval of the program in its currently proposed form;
- 17 3. Whether NSTAR is pricing the proposed product correctly or appropriately;
- 18 4. The degree to which NSTAR Green reflects or resembles industry best  
19 practices, and the prospects for its success relative to other green pricing  
20 programs including GreenUp;
- 21 5. The relative success of competitive green pricing programs in which RECs  
22 supplied by third parties are offered via the utility bill;

1           6. The effectiveness of NSTAR's renewable energy certificate ("REC") supply  
2           procurement strategy in supporting new renewable supply; and finally,  
3           7. To make recommendations to the Department as to how it should rule on  
4           NSTAR's filing.

5   **Q:    Please summarize your conclusions.**

6   A:    The Department should reject NSTAR's filing as proposed and modified during  
7          the course of this proceeding. The Department should instead, after providing  
8          some principles as guidance, request that interested parties commence a  
9          stakeholder discussion. This discussion should be aimed at creating a substitute  
10         program that can fairly meet the needs of the market participants as well as  
11         NSTAR. It should be consistent with the competitive electricity market structure  
12         in Massachusetts Restructuring Act, Department precedent, and the  
13         recommendations that I have provided in this testimony.

14

15   **II. THE CURRENT STATE OF THE GREEN POWER MARKET IN NSTAR**  
16   **TERRITORY.**

17

18   **Q:    Are green power options currently available to small NSTAR customers?**

19   A:    Yes. NSTAR has asserted in its filing, as its primary justification for offering the  
20         NSTAR Green proposal, a lack of green power opportunities available to its small  
21         customers. However, small customers in NSTAR territory and elsewhere in  
22         Massachusetts are being provided with an increasing number of options, of which  
23         NSTAR has been well aware (as evidenced by responses to Information Request  
24         CLC/MEC-1-3(supp)).

1    **Q:     Please describe the options currently available?**

2    A:     At least two companies are currently offering a comparable service to that  
3           proposed by NSTAR to small customers in NSTAR territory, that is, NEPOOL  
4           GIS RECs. These include local aggregators Mass Energy (with its 100% new  
5           wind “New England Wind” offering) and Conservation Services Group (initially  
6           with its ReGen product originally developed by my division at AllEnergy, soon to  
7           be replaced by a product similar to its offering in the GreenUp program). Others  
8           offering RECs from national sources, not supported by NEPOOL GIS certificates,  
9           are also available in Massachusetts. Six such vendors are listed on the Green-e  
10          web page.

11   **Q.     What other Green Power offerings are likely to be made available to small**  
12       **NSTAR customers, if given the opportunity?**

13   A:     Based on their participation in the Massachusetts Electric Company’s GreenUp  
14          program, and their recent commitments to enter the Rhode Island market with  
15          similar or improved product offerings, I expect that if offered reasonable access,  
16          Community Energy, Sterling Planet, Conservation Services Group and Mass  
17          Energy would make products available in the NSTAR territory. In addition, the  
18          Compact has made known its intent to bring a program to the 21 towns in its  
19          aggregation.

20   **Q:     Why do you believe have such marketers not entered the market already?**

21   A:     While many of these specialized green power marketers and aggregators are  
22          poised to enter the NSTAR market by virtue of entering neighboring markets and  
23          securing a forward supply of high quality GIS RECs, in my opinion such entities

1 find a significant investment in business infrastructure necessary to enter a new  
2 market and acquire customers is far less attractive without access to (a) the  
3 customer bill, and (b) a dense media market where its offerings can be made as  
4 nearly more or less universally available to the majority of customers within reach  
5 of various media outlets (radio and print, and to a far lesser extent, television).

6 **Q: What factors should be used to compare NSTAR Green to these other**  
7 **products?**

8 A: Structural approach (how the product is put together and its format, typically a  
9 fixed quantity or “block” in each month, all of a customer’s usage, or as a  
10 percentage of usage); quality (objective and subjective value); the price/value  
11 proposition; how billing and collections are handled; and terms and conditions.

12 **Q: Please compare the approaches on the basis of structure.**

13 A: The fundamental structural distinction between all of the NEPOOL GIS REC-  
14 based offerings I have described, and the NSTAR Green offering, is that all but  
15 NSTAR Green are without access to the NSTAR bill, so are offered to customers  
16 directly, with billing and collections independent of NSTAR. NSTAR has  
17 attempted to draw a distinction between its proposed offer and direct sales of  
18 RECs. It has suggested throughout its case and discovery responses that NSTAR  
19 Green has far more in common with a competitive electric supplier’s green power  
20 offering than a sale of NEPOOL GIS RECs to customers. Consistent with staking  
21 out this position, NSTAR has offered to post on its website only the offerings of  
22 green power by competitive electric suppliers, but not offerings of GIS RECs not  
23 appearing on the utility bill. NSTAR (response to Information Request



1 CLC/MEC-1-15) argues that the primary distinction between NSTAR Green and  
2 direct GIS REC sales is that NSTAR Green quantities are “tied to a customer’s  
3 energy usage” and that direct REC sales, because they are “block” products, are  
4 not.

5 **Q: Do you agree with NSTAR’s distinctions?**

6 No, I do not. In my opinion, there are no structural characteristics of NSTAR  
7 Green, as proposed, that distinguish it from direct sales of GIS certificates to  
8 customers other than product format. First, it is inaccurate for NSTAR to argue  
9 that being a *usage* rather than a *block* product makes NSTAR Green analogous to  
10 a delivered competitive electricity offering while a direct sale is not. In the New  
11 England market, each product is put together exactly the same: A REC supplier,  
12 or NSTAR, purchases certificates and offers them to customers. In the case of an  
13 offering based on NEPOOL GIS certificates, they are both verified by the  
14 NEPOOL GIS system, one matched through a load asset account with financial  
15 settlement of energy supplying the customer, the other through a reserved  
16 certificate account (since the associated load asset is served by another party).  
17 The only material distinction is billing and collections, one being billed with the  
18 sale of electricity, the other independently. Second, the primary reason that direct  
19 REC offerings are typically block products is that their marketers do not have  
20 access to timely information on the customer’s usage volume, as do NSTAR,  
21 competitive electric suppliers, and GreenUp marketers. Without access to this  
22 information, others cannot readily count the actual usage, although REC

1 marketers often attempt to approximate customer usage (through the sale of the  
2 right number of blocks), and some even true up to actual usage.

3

4 But most importantly, there are many green pricing products and competitive  
5 supply offerings in the country structured as “block products”; because a  
6 competitive electric supplier could offer such a block product in NSTAR territory,  
7 NSTAR’s argument is without merit. Lastly, NSTAR in discovery (responses to  
8 Information Request CLC/MEC-1-3(supp) at 467 and 473,) has indicated it plans  
9 to further modify its proposed offering to pursue certification from Green-e under  
10 its “block” standard, further undermining its distinction.

11 **Q: How can the quality of green power offerings be compared?**

12 A: Green Power product quality is in some ways subjective (in that some customers  
13 have different preferences than others), but in other respects straightforward  
14 metrics can be identified and applied. Even for the subjective factors, market  
15 research such as that conducted by NSTAR and many others can allow one to  
16 draw conclusions on perceptions of a majority of customers. For example, for a  
17 comparable price, products with higher content in new renewables of the same  
18 type are clearly higher quality than those with less. Among those offerings with  
19 the same amount of new renewables, those with higher proportions of the  
20 renewable resources customers most prefer (like wind, solar) are generally  
21 thought of as higher quality. In general, incremental or new renewables  
22 (generally thought of as post -restructuring) are perceived as higher quality than

1 existing resources. And to most people, local resources are preferred to distant  
2 resources, all else being equal.

3 **Q. Please compare the NSTAR Green and other offerings mentioned on the**  
4 **basis of quality.**

5 A: Based on these metrics of quality, the proposed NSTAR Green in its current  
6 incarnation (as described in response to DOER's first set of information requests)  
7 is not fundamentally better than many of the other options available to customer  
8 currently in NSTAR territory or through the GreenUp program.

9  
10 Consider for example the New England Wind product offered by Mass Energy.  
11 At 100% new wind RECs based on NEPOOL GIS certificates from a local source,  
12 and Green-e certified, it is clearly superior to NSTAR Green in quality under any  
13 measure. I believe similarly favorable comparisons can be made to CSG's ReGen  
14 offering.

15  
16 In the Massachusetts Electric GreenUp program, Mass Energy's New England  
17 Green Start (30% new, very local, with over 11% from new wind and solar) is  
18 clearly superior to NSTAR Green in quality under any measure. A similarly  
19 favorable conclusion can be reached for two other offerings based on the type,  
20 quantity and location of their new renewables. All three offerings surpass the  
21 new renewables content of NSTAR Green. All GreenUp offerings contain far  
22 more wind and solar than NSTAR Green's 3%, ranging from as low as 5.5% to as  
23 high as 50%.

1

2 Finally, in my opinion, if new renewables weren't scarce (as NSTAR has  
3 discovered), I believe at least some of the aforementioned suppliers would be  
4 offering products with even higher percentages of new renewables. Even with  
5 this scarcity, it is my opinion that competing vendors of green power, while  
6 supply constrained, are capable of supplying more customers than NSTAR in the  
7 near term, and have committed to additional new supply expected to come online  
8 within a year or so that would further relieve any such constraints.

9 **Q: How can Green Power products be compared on price?**

10 A: Green power products can rarely be compared head-to-head strictly on the basis  
11 of price without consideration of quality, because (for the reasons identified in my  
12 discussion of quality), offerings exist on a price-value continuum. The proper  
13 comparison is one of value, what you get relative to what you pay. As with  
14 comparisons based on quality, comparisons on price when considering value are  
15 not always straightforward when trading off between price and quality, but can be  
16 made in many cases by looking to common denominators. For example, all else  
17 being equal, if two products have RECs from the same generating plant, but one  
18 has more at the same price, the price of the product with more of that resource  
19 represents a better value.

20 **Q: Please compare the NSTAR Green and other offerings mentioned on the**  
21 **basis of price.**

22 A: Some of the product examples identified above can be unambiguously compared  
23 in this manner. First, consider Mass Energy's New England Wind offering. This

1 can be compared on an apples-to-apples basis by looking at the cost per new  
2 renewable certificate to customers: New England Wind is sold for 3.5¢ per kWh;  
3 NSTAR Green's proposed price (which I will argue below is understated), is  
4 5.115¢ per kWh (see response to Information Request DOER-1-2).

5  
6 Next, consider the GreenUp products referenced above. As noted, several  
7 GreenUp products that have at least as much new renewable content as NSTAR  
8 Green, and compare favorably on proportions of more desired type of renewables  
9 and/or location. One offering already identified as of higher quality than NSTAR  
10 Green (even ignoring for now the additional benefit of a higher percentage of  
11 (existing) renewables) has a price below NSTAR's proposed price of 1.28¢ per  
12 kWh of RECs, even without the corrections discussed below. NSTAR's is clearly  
13 not the better value.

14  
15 As I will show later, other GreenUp offerings identified above as of higher quality  
16 than NSTAR Green are priced in Massachusetts Electric territory below the likely  
17 true cost of NSTAR Green. If a product has been shown to be more attractive  
18 from a quality perspective and offer both more new and more existing renewables  
19 than NSTAR Green, and NSTAR Green is priced correctly under any set of  
20 reasonable assumptions, I believe it can be clearly shown that NSTAR Green's  
21 price will represent an inferior value. In addition, it is my opinion that competing  
22 green power vendors, through their current commitments to new supply and

1 increasing scale over time, and driven by competitive positioning, will be  
2 improving their quality/price/value proposition over time.

3 **Q: Please summarize your conclusions regarding the state of the green power**  
4 **market in Massachusetts and NSTAR Green's potential contribution to that**  
5 **market.**

6 A: In summary, there are already some green offerings already available in the  
7 NSTAR territory, with others poised to enter if given an opportunity and a level  
8 playing field. Compared to these offerings, NSTAR Green, even at the proposed  
9 price, does not offer better quality, better price or better value than some of these  
10 offerings. It is clear that NSTAR Green is not a better value than other offerings  
11 unless NSTAR is successful in shifting the true cost of its product to standard  
12 offer and default service customers, as I discuss later in this testimony.

13

14 **III. BARRIERS TO ENTRY RESULTING FROM THE PROPOSED NSTAR**  
15 **GREEN PROGRAM AND THEIR IMPACT ON OPTIONS AVAILABLE**  
16 **TO NSTAR CUSTOMERS.**  
17

18 **Q: Do you believe that the proposed NSTAR Green program will have a positive**  
19 **effect on other suppliers seeking to offer green products to NSTAR**  
20 **customers?**

21 A: No, I do not. NSTAR states that "it believes that NSTAR Green will have a  
22 positive effect on other suppliers seeking to offer green products of all kinds  
23 because it will increase awareness of "green" alternatives." NSTAR Initial Filing  
24 October 16, 2003. In my opinion, the approval of NSTAR Green as proposed will  
25 become a substantial barrier to other suppliers. These barriers will deter, not

1 advance, the prospects of a competitive market for small customers. While  
2 NSTAR contends there would be a level playing field for competitive electric  
3 supply offerings, this is not the case.

4 **Q: Why do you reach this conclusion?**

5 A: The proposed NSTAR Green program is anticompetitive in several respects.  
6 Apart from the concerns over whether such an offering is inconsistent with  
7 Massachusetts law and regulation, which I do not address here, barriers include:  
8 (a) NSTAR branding and its impact on customer resistance to other green power  
9 offerings, (b) use of distribution company personnel to distribute materials and  
10 market the NSTAR Green product exclusively, (c) damage to the credibility of  
11 other green offerings, (d) impeding other green marketers' ability to achieve  
12 reasonable customer acquisition costs and reach viable scale, (e) the effect on  
13 product marketing and consumer education of balkanizing the Massachusetts  
14 market into two or more patchwork markets, and (f) the fact that NSTAR Green is  
15 proposed to be priced below its cost.

16 **Q: Why does NSTAR branding of a green power offering represent a barrier to**  
17 **competition?**

18 A: With NSTAR offering and marketing a branded product exclusively, any green  
19 competitive bundled supply offering will appear to a potential customer in  
20 comparison as a switch, which is perceived by customers as risky with respect to  
21 price risk or reliability. This is one major reason why the DTE established  
22 standards of conduct, to neutralize the nearly insurmountable barrier of  
23 incumbency in the eyes of small customers. The use and exclusive marketing of a

1 branded product will discourage suppliers who may have considered a green  
2 competitive supply offering because it will impede customers from switching. It  
3 will also discourage marketing of RECs directly to customers. Since their  
4 products are not being co-marketed by NSTAR and/or lack access to NSTAR's  
5 billing and collection services, suppliers will be at an insurmountable  
6 disadvantage with respect to customer acquisition cost and customer education on  
7 the distinctions between green electricity supply and certificate supply.

8 **Q: Why does the use of distribution company personnel to distribute materials**  
9 **and market NSTAR Green exclusively create barriers?**

10 A: NSTAR has indicated plans to distribute NSTAR Green materials with energy  
11 efficiency materials, and use its account reps for NSTAR Green outreach. Use of  
12 wires company personnel constitutes a barrier by producing enhanced visibility,  
13 suggestions of credibility, and cost advantages exclusively to the NSTAR product.  
14 (This is particularly so, if the costs of these activities are not accurately reflected  
15 in the cost of NSTAR Green.) Competitive electric suppliers will be  
16 disadvantaged because of these advantages of incumbency. REC marketers will  
17 be further disadvantaged because of the additional suggested superiority and  
18 clearer *apparent* linkage to electricity supply. As I explained earlier, the only  
19 substantive difference between the NSTAR Green product and a REC product is  
20 that NSTAR's would be billed by the same company supplying electricity.

21 **Q: How might the introduction of NSTAR Green, as proposed, damage the**  
22 **credibility of other green offerings?**



1     A:     If NSTAR's offering is perceived as unattractive in price, quality and/or value,  
2             and is short on supply, NSTAR risks creating at least two potentially damaging  
3             perceptions. First, customers may become desensitized to the differences between  
4             a good product and a bad product, associating with all green power offerings their  
5             weak impressions of the first offerings. Perhaps more importantly, due to the  
6             trivial amount of wind and solar supply NSTAR has been able to secure,  
7             customers may be left with the perception that green power in general is not a  
8             viable offering. Because NSTAR's offering will be limited to less than 800  
9             customers (NSTAR Response to DOER Information Request 1-1.), only a 0.1%  
10            penetration, many potentially interested customers will be left with the impression  
11            that green power is not real.

12  
13           Word of mouth and long memories will become impediments if NSTAR is not  
14           forthright in communicating that NSTAR Green is a very limited offer. Consider,  
15           by way of example, those Massachusetts customers who left standard offer to an  
16           unsustainably low-priced offer from Utility.com, only to find out that the low  
17           introductory price was not available later (not adequately disclosed) and to have  
18           their costs jump well above the standard offer that they left behind. I would  
19           expect such customers, who represent the "low-hanging fruit" inclined to switch  
20           from the perspective of competitive electric suppliers, to view any new offering of  
21           savings with skepticism.

22

1       The importance of potential damage that could result from leaving the impression  
2       that green power is not a viable offering is evidenced by a recent study by The  
3       Clean Energy States Alliance, a consortium of state renewable energy funds. In its  
4       clean power market research and messaging project (funded by MTC and four  
5       other state funders), the authors concluded that one of the primary reasons  
6       customers do not act on their professed interest in clean power in numbers  
7       consistent with survey results (high percentage willing to pay more) is that they  
8       do not believe that renewable energy is actually viable and “up to the task.” Fully  
9       subscribing an offering that NSTAR repeatedly puts before 800,000 customers  
10      after less than 800 signups will likely reinforce this perception.

11   **Q:    How would the NSTAR Green proposal impede a green marketer’s ability to**  
12    **achieve reasonable customer acquisition costs and reach viable scale?**

13    A:    As the cost analysis detailed below will show, economies of scale are a  
14       fundamental determinate of market viability in the green power business due to  
15       the presence of fixed startup and operating expenses incurred regardless of the  
16       number of customers.

17  
18       Consider a simple, illustrative example: if a green marketer determines that it  
19       needs to spend \$500,000 in fixed costs to enter a market successfully, the  
20       customer acquisition cost of the first customer is \$500,000. Not until that  
21       marketer approaches 4,000-5,000 customers at a minimum do per-customer  
22       acquisition costs fall below a \$100-125 level at which a business plan might start  
23       to look viable, with fixed costs per kWh sales dropping off dramatically

1           thereafter. Scale is necessary to deliver a product to mass markets. Relegating all  
2           other products to second class status by putting a utility branded offering into a  
3           competitive market will increase the cost of acquiring customers substantially for  
4           green power, whether offered by licensed competitive suppliers or certificate  
5           marketers.

6   **Q.    How will dividing the state into two or more large geographic segments affect**  
7           **both broad-based consumer education campaigns and product specific**  
8           **marketing?**

9   A:    Introducing a different green power market structure in NSTAR's territory that is  
10       exclusive in its effect will be harmful to both product-specific marketing and  
11       broad-based consumer education efforts. Balkanizing the Massachusetts media  
12       markets into a patchwork of territories, while carving out the central media  
13       market through which marketers can effectively reach customers, critically  
14       impairs a marketer's ability to reach necessary scale for viability. This would  
15       lead to both customer confusion and frustration when a customer in one town can  
16       buy what the customer in the next cannot. It would undermine marketers' ability  
17       to spend marketing dollars on media (radio or print, for instance) to effectively  
18       target their market as much of the message would fall on the ears of ineligible  
19       customers. The same principle holds for expenditures on consumer education on  
20       green power.

21   **Q:    How would NSTAR Green affect the development of a successful competitive**  
22           **green market?**

1 A: At the present time, there is little supplier interest in offering a green bundled  
2 competitive electric product to NSTAR's small customers at this time, given the  
3 clear advantages in the cost of doing business when NEPOOL GIS certificate  
4 marketers have access to utility billing services. If green power suppliers are only  
5 marginally interested in providing bundled green service before NSTAR's filing,  
6 they will certainly be less interested if the NSTAR Green proposal is approved as  
7 currently configured.

8

9 **IV. PRICING OF THE NSTAR GREEN PRODUCT**

10 **Q: Do you believe that the anticipated price premium for NSTAR Green, as**  
11 **represented in NSTAR's response to DOER Information Request 1-2, is**  
12 **correct and appropriate?**

13 A: No, I do not, for two reasons. First, NSTAR is not reflecting the appropriate cost  
14 for renewable energy certificates in pricing its offering. And second, NSTAR is  
15 pricing the product at below cost, as a result of shifting all non-REC costs to  
16 recovery in its distribution, standard offer and/or default service rates, including  
17 both participants and non-participants.

18 **Q. What is the implication of pricing below cost to potential competitors?**

19 A: Mr. Daly argues in his affidavit that the NSTAR Green program is not  
20 anticompetitive, that it does not restrict any licensed competitive supplier or  
21 municipal aggregator or broker from offering its own renewable power option,  
22 and makes no restrictions on alternative suppliers offering a product in direct  
23 competition to NSTAR's offering. As the proposed product is priced, however,

1       these statements are disingenuous, at best. NSTAR has said that it will offer the  
2       product below cost (deciding later to seek recovery of costs not included in the  
3       price). In addition to the barriers discussed earlier, offering a product priced  
4       below cost creates an immense barrier to entry for competitive offerings. While  
5       deferred recovery of costs in a monopoly market is standard practice, competitive  
6       suppliers cannot compete on this basis. NSTAR is asking the DTE for a very  
7       skewed playing field. I do not expect customers to switch if NSTAR is allowed to  
8       offer a product priced in this manner.

9       **Q.     Why is the cost identified by NSTAR for RECs reflected incorrectly in the**  
10       **product price?**

11      A:     There are three possible reasons, likely related to NSTAR's RPS compliance  
12       status, NSTAR's expressed intention to "discount" wind RECs from New York  
13       by 50%, and the omission of adjustment for line losses.

14      **Q:     How is NSTAR's RPS compliance status relevant to NSTAR Green pricing?**

15      A:     If NSTAR ends up short in its RPS compliance, it would be inappropriate to price  
16       any RECs used in NSTAR Green at below \$50/MWh. This is because for every  
17       MWh that NSTAR falls below its compliance obligation, it will be obligated to  
18       pay at least \$50/MWh alternative compliance payment ("ACP"). This would, of  
19       course, not be a factor if NSTAR is expected to be in full compliance with the  
20       RPS, but based on NSTAR's responses to CLC/MEC Information Request 1-9,  
21       and extensive documentation throughout its response to CLC/MEC Information  
22       Request1-3(supp) on the short supply of RECs, NSTAR has presented no  
23       evidence to refute the expectation that it will fall well short in 2004 and be liable

1 for ACP payments. If there is an RPS shortfall, NSTAR's RPS obligation should  
2 take precedence over its voluntary green pricing. Any REC used by NSTAR for  
3 green pricing is cherry-picked, effectively borrowed from the RPS obligation on  
4 behalf of Standard Offer and Default Service customers, with an effective  
5 replacement cost of \$50/MWh. In such a circumstance, NSTAR Green must price  
6 all RECs procured at less than \$50 as if they cost \$50, and give its regulated  
7 customers the financial benefit of any RECs procured below \$50.

8  
9 Based on NSTAR's response to DOER Information Request #1-2, the average  
10 price per REC is identified as \$51.15 per MWh. This obviously implies that at  
11 least some of the RECs cost NSTAR over \$50 per MWh. Based on recent market  
12 prices for RECS for 2004 RPS compliance, recent compliance trades for 2004  
13 RECs have been in the mid-\$40's per MWh. To be conservative, I will use the  
14 assumption from NSTAR's response to CLC/MEC Information Request1-3(supp)  
15 at 274 of \$47/MWh. Assuming that a premium was paid for solar (consistent  
16 with recent broker quotes for solar RECs trading in excess of RPS compliance  
17 REC prices) and all other RECs were at the \$47 price, this would imply that  
18 NSTAR paid approximately \$150 per MWh for solar RECs. (Other combinations  
19 are of course possible, but this case is representative). So, based on the  
20 replacement cost argument and the price assumptions in this illustrative case,  
21 unless NSTAR has shown that it is in full compliance with its RPS obligations,  
22 then it would be appropriate to price the product based on 1% of RECs at  
23 \$150/MWh, and 24% at the \$50/MWh replacement cost.

1   **Q:    What would be the proper reflection of NSTAR’s expressed intention to**  
2       **“discount” wind RECs from New York on the product price?**

3   A:    NSTAR’s expressed its intention to “discount” wind RECs from New York by  
4       50% (see NSTAR response to DOER 1-1). This means that twice as many wind  
5       RECs must be paid for. Thus, consistent with this representation, the effective  
6       price must account for the cost of 2% (of sales) more wind RECs without  
7       increasing the units of sales.

8   **Q:    Please explain the proper application of transmission and distribution line**  
9       **losses.**

10   A:   Retail pricing for such a product must be adjusted for line losses. As Mr. Daly  
11       acknowledges in his affidavit, NSTAR has established load asset accounts within  
12       the NEPOOL GIS system for tracking customer usage, and will produce a  
13       disclosure label consistent with DTE requirements, which is appropriate. It is  
14       standard practice for the load asset in the NEPOOL GIS to be grossed up to  
15       reflect transmission and distribution line losses. Competitive suppliers of  
16       electricity are subject to these line losses. Marketers under the Massachusetts  
17       Electric Company’s GreenUp program are subject to this loss adjustment, as  
18       approved by the DTE as well. Line loss adjustment is consistent with NSTAR’s  
19       claim that they it is selling a percent of customer usage. NSTAR applies a 9.34%  
20       loss factor to competitive supply for residential customers, and this same factor  
21       should be applied to increase the number of RECs that NSTAR must purchase to  
22       be able to claim that they are supplying 25% of a customer’s usage with NSTAR  
23       Green.

1   **Q:    What is the approximate combined effect of these corrections to NSTAR**  
2       **Green REC cost?**

3       As can be seen from Exhibit-RCG-5, the combined effect of these illustrative  
4       adjustments corresponds to a loss-adjusted REC price of \$0.0159 per kWh, almost  
5       25% above the \$0.0128 put forth by NSTAR.

6   **Q.    You indicated that NSTAR was not including non-REC costs in the product**  
7       **price. Please elaborate.**

8   A:    NSTAR has indicated that the price reflects only the cost of RECs, and that other  
9       costs as actually incurred will be tallied later, for possible recovery at later date  
10       “if enrollment can support it.” In response to CLC/MEC Information Request1-5,  
11       NSTAR acknowledges the existence of many categories of costs -- incremental  
12       administrative, procurement, contracting, auditing, Green-e certification, for  
13       example -- but insists that they are small and too hard to estimate at this time. I  
14       believe they are small, relative to the scale of NSTAR’s overall operations, but  
15       will show that they are not small when spread over the small volume of REC sales  
16       of NSTAR Green. Note that NSTAR’s response to CLC/MEC Information  
17       Request1-3(supp) at 278 indicates that these costs will be recovered through the  
18       default tariff, that they must be tracked for an annual true-up, and that an estimate  
19       should be included in the initial rollout, which it was not.

20

21       Furthermore, setting aside for the moment whether the *use* of NSTAR’s  
22       distribution company personnel and related assets is proper, the appropriate costs  
23       should include not just the obvious incremental costs associated with the offering



1 of NSTAR Green, but all appropriate allocated costs for shared resources,  
2 consistent with principles of cost causation followed by the Department. Only if  
3 *all* such costs are included in the product price could the playing field be  
4 anywhere close to level.

5 **Q. Can you estimate the appropriate pricing of NSTAR Green?**

6 A: It is difficult to be precise, given that NSTAR was non-responsive to CLC/MEC-  
7 1-5. While NSTAR (in response to this critical information request) argues that  
8 such costs are not expected to be material, my analysis based on conservative  
9 estimates of some costs, without attempting to quantify all appropriate costs, will  
10 be sufficient to demonstrate conclusively that (at NSTAR's expected customer  
11 penetration rates) such costs are indeed material.

12

13 Based on the information which was provided by NSTAR and my own  
14 experience, I have attempted a conservative bottom-up estimate of the true cost of  
15 NSTAR Green, consistent with generally accepted cost causation and rate design  
16 principles applicable to regulated utilities in the state, using a modification of a  
17 "steady-state pricing" model I have developed. (While the model is proprietary, I  
18 have included a printout of the results as Exhibit RCG-5. Its calculations are  
19 straightforward to reproduce).

20

21 The model uses input assumptions for the longevity of a customer (so per-  
22 customer costs are recovered over this period), and the amortization period of  
23 one-time costs. For the former, based on my experience, I have used a

1 conservative estimate of average customer longevity of 24 months (longer than I  
2 would assume for a non-green customer, as price-oriented customers are generally  
3 more inclined to keep shopping than customers who choose based on reasons  
4 other than price); and a 24 month period for amortization of project fixed cost  
5 (reflecting NSTAR’s 2-year “marketing window”).

6 **Q. What types of costs should be considered?**

7 A: Ideally, costs include one-time startup and ongoing costs in the following  
8 categories:

9 (a) incremental and allocated administrative costs;

10 (b) product development costs, such as phone surveys, the CSG Audit Survey  
11 Focus Groups, and product design (see NSTAR response to CLC-MEC  
12 Information Request1-3(supp) at 500), including internal staff, Brown Marketing  
13 Research; and Kema/Xenergy;

14 (c) marketing and sales costs, both incremental (cost for developing the logo,  
15 marketing copy, pamphlets to be distributed with energy efficiency material,  
16 presentation materials, web site, press conferences, “NSTAR Brand Trinket”  
17 offered with signup, promotional coffee mugs with signups at promotional signup  
18 days, etc), and the allocated cost of use of distribution company resources, such as  
19 the use of personnel for presentations to select groups and outreach using account  
20 executives, or staffing booths at trade shows, as noted in responses to CLC-MEC-  
21 1-3(supp) pp. 305, 487, and 653, etc.);

22 (d) Costs of Billing and information systems changes (by virtue of the  
23 Department’s Order in the GreenUp case, these costs were borne by participants);

1 (e) Allocated costs of a portion of bill stuffer costs (also in the GreenUp case  
2 borne by participants);  
3 (f) Green-e certification and audit costs, assuming NSTAR successfully seeks  
4 Green-e certification (see NSTAR response to CLC/MEC Information Request 2-  
5 5);  
6 (g) Customer service script development, training;  
7 (h) Ongoing customer-service staffing;  
8 (i) Procurement and contracting costs (staff and legal);  
9 (j) Legal and regulatory issues (including both staff and outside counsel),  
10 including the establishment of over 20 new rate classes, as well as efforts to seek  
11 endorsements, whether or not they were successful;  
12 (k) Extensive meetings of the product development team;  
13 (l) Allocated overheads (A&G) consistent with factors used in NSTAR rate cases;  
14 and  
15 (m) Bad debt (Identified as an issue in NSTAR's response to CLC/MEC  
16 Information Request1-3(supp) at 461, 526).

17 **Q: How have you estimated costs for these various cost categories?**

18 A: These various costs of NSTAR's startup and ongoing efforts are difficult to  
19 precisely project at this time, so I have attempted to make a conservative estimate.

20 **Q: How have you attempted to quantify NSTAR staff startup costs?**

21 A: One-time startup costs are difficult to estimate, but NSTAR's response to  
22 CLC/MEC Information Request1-3 was that at least four individuals in customer  
23 care (McLean-Conner, Gundal, Ruscetta, and Milton); three energy supply staff

1 (Anglely, Daly, and Cunningham); one in corporate communications (Connelly),  
2 and one in Regulatory Policy and Rates (Chiara) were substantially involved in  
3 the project. This group includes both executive and lower level staff; I will  
4 assume for purposes of my illustration an average fully loaded (i.e. includes  
5 benefits and other A&G overheads) of \$120,000 per year, which I believe is  
6 conservative. I have estimated based on documentation of efforts in NSTAR's  
7 response to CLC/MEC Information Request1-3(supp) that each individual on  
8 average spent 20% of their time on this project during the past year, as startup  
9 costs. Clearly, some individuals spent far more time, and others perhaps less. I  
10 believe this is very conservative given the inclusion of several other individuals  
11 on meeting summaries as attendees and on distribution lists. The result was  
12 \$24,000 per individual.

13 **Q: How have you estimated other startup-related costs?**

14 A: For outsourced product development costs, I have estimated an expense of  
15 \$35,000. For developing the logo, marketing copy, collateral to be distributed  
16 with energy efficiency material, presentation materials, and web site, I have  
17 estimated another \$30,000, and for an initial press conference, \$5,000. The costs  
18 of billing and information systems changes was shown in NSTAR's response to  
19 CLC/MEC Information Request1-3(supp) at 522, to be 1066 CIS hours with a  
20 25% contingency. I assume a fully-loaded cost factor of \$70 per hour, for a one-  
21 time cost of \$75,000. I have estimated customer service script development,  
22 training – including outsourced effort by the School of Process and Technology  
23 (see NSTAR's response to CLC/MEC Information Request1-3(supp)) – at

1           \$10,000. Procurement costs and much of the contracting costs are assumed  
2           covered in staffing costs above, although I expect that significant involvement  
3           from NSTAR’s legal department was necessary. I’ve estimated another \$10,000.  
4           For legal and regulatory issues, I will conservatively estimate the costs of Keegan,  
5           Werlin and Pabian’s services at \$40,000, through the end of this proceeding.

6   **Q: How have you estimated ongoing program costs?**

7   A: For ongoing costs, I have estimated that incremental and allocated administrative  
8           costs require one full time equivalent at \$120,000 fully loaded per year; that press  
9           event costs are \$10,000 for the first year, consistent with the NSTAR marketing  
10          plan. For the “NSTAR Brand Trinket” offered with signup, or coffee mugs with  
11          signups at promotional signup days, I have assumed \$1 per customer. The  
12          allocated cost of use of distribution company resources (for example, the use of  
13          personnel for presentations to select groups and outreach using account  
14          executives, staffing booths at Home Show or other related shows) is estimated as  
15          200 person-hours per year at a fully-loaded cost of \$100 per hour. I have  
16          estimated the allocated share of costs attributable to NSTAR Green of designing  
17          and printing bill stuffer design and printing costs for 800,000 residential  
18          customers (ignoring the smaller number of commercial customers), if estimated at  
19          1¢ per stuffer, it corresponds to \$8,000 for each month that information is  
20          included in the bill. I have assumed three mentions in bill stuffers per year, based  
21          on NSTAR’s marketing plan. Green-e certification costs \$6,000 per product per  
22          year, and audit costs are estimated at \$2,500. Incremental costs of developing and  
23          printing additional disclosure labels are assumed to be \$1 per customer per year.

1

2 Ongoing customer-service staffing is calculated on the basis of costs per minute  
3 of customer service representative time of \$37 per hour fully loaded cost and 6¢  
4 per minute incoming call costs. Based on reports from green power marketers  
5 that customer service call times experienced relating to green power are  
6 significantly longer than typical, given the newness of the product, I have  
7 estimated average call duration of 15 minutes per customer per year.

8

9 For ongoing procurement and contracting costs, I have assumed 10% of a full-  
10 time-equivalent position at \$120,000 fully loaded per year (or \$12,000). Bad debt  
11 is estimated at 1% of REC costs. Finally, working capital costs are estimated at a  
12 40 day mean lag on payments for supply and receipt of payments, carried at a 6%  
13 rate of interest.

14 **Q: Please describe the results of your analysis.**

15 A: At the outset, while I believe my experience provides a reasonable basis for  
16 making some of these estimates I acknowledge that I may be off-base in any  
17 number of my estimates, high or low. Nonetheless, for purposes of estimating the  
18 order of magnitude of the appropriate costs (and therefore price) of NSTAR  
19 Green, I have concluded based on the assumptions above, and assuming the 800  
20 customer penetration indicated for the first year in DOER-1-1, that a fully  
21 allocated cost-based retail rate per unit retail sales for NSTAR Green is 10.22¢  
22 per kWh rather than 1.28¢ per kWh (or on a per-REC basis, 40.96¢ rather than  
23 5.115¢). For a 500 kWh per month customer, this corresponds to \$51.12 per

1 month rather than \$6.39 per month as proposed by NSTAR. Let's call this my  
2 base case.

3 **Q: Given that you are making quite a number of estimates, how sensitive is this**  
4 **analysis to fine-tuning based on actual costs if supplied by NSTAR?**

5 A: Good question. To test the usefulness of this analysis, I performed several  
6 sensitivities to this base case, in case my estimates turn out to be very high. The  
7 derivation of these cases is shown in worksheets designated as Exhibits RCG-6  
8 through RCG-10. The results are summarized as follows:

9  
10 Sensitivity #1: If the DTE would support a longer amortization period for startup  
11 costs, the per-unit cost would drop. To illustrate the outer bound of this factor,  
12 my first sensitivity assumes that all such startup costs are ignored. The resulting  
13 cost-based retail rate should be 5.84¢ per kWh, or 23.42¢ per REC, corresponding  
14 to \$29.20 per month for a customer using 500 kWh/month.

15  
16 Sensitivity #2: To be really conservative, as another sensitivity, I halved all non-  
17 REC costs. The resulting cost-based retail rate was 5.90¢/kWh, or 23.65¢ per  
18 REC, corresponding to \$29.52 per month for a customer using 500 kWh/month.

19  
20 Sensitivity #3: Utilizing the adjustments in both 1 and 2 to be even more  
21 conservative, I ran the model assuming both that non-REC costs were only 50%  
22 of my base case estimates, and that all startup costs were ignored. The resulting

1 cost-based retail rate would be 3.71¢/kWh, or 14.88¢ per REC, corresponding to  
2 \$18.56 per month for a customer using 500 kWh/month.

3  
4 Sensitivity #4: To explore the sensitivity of this analysis to the number of  
5 customers served, I also assumed that NSTAR was three times as successful in  
6 securing wind and solar RECs, so that it could serve 2400 rather than 800  
7 customers. Although this case is not feasible in 2004, the resulting cost-based  
8 retail rate under these assumptions would be 4.60¢/kWh, or 18.46¢ per REC,  
9 corresponding to \$23.00 per month for a customer using 500 kWh/month.

10  
11 Sensitivity #5: Finally, to test what conditions would need to hold in order for a  
12 properly calculated NSTAR Green price to fall within the range of prices charged  
13 in the GreenUp program, I combined the most conservative cost assumptions  
14 from Sensitivity #3 (non-REC costs were only 50% of my base case estimates,  
15 and that all startup costs were ignored) with the higher number of customers from  
16 Sensitivity #4. The result was a cost-based retail rate under these assumptions  
17 would be 2.32¢/kWh, or 6.34¢ per REC, corresponding to \$11.60 per month for a  
18 customer using 500 kWh/month.

19 **Q: What do you conclude from this analysis?**

20 A: The point is, under a very wide range of conservative estimates, if the true costs  
21 of NSTAR Green included in its price, the implications are dramatic. It is not  
22 particularly important that my estimates are precisely accurate; as long as they are  
23 in the right order of magnitude, my conclusion would continue to be that non-



1 REC costs are not (as NSTAR claims) immaterial, and that their omission from  
2 NSTAR Green's price is a substantial barrier to entry.

3 **Q: What, in your opinion, would be the effect on the competitive market if the**  
4 **true cost of NSTAR Green were not reflected in the product price?**

5 A: I would not expect any entry by green power marketers, whether supplying RECs  
6 only or electricity, to compete for small customers in NSTAR territory, for they  
7 would be unable to compete effectively.

8 **Q: What would be the repercussions if NSTAR were not to seek recovery of**  
9 **non-REC costs?**

10 A: NSTAR indicated in its response to CEC/MEC-1-7 that if it decides not seek to  
11 recover non-REC costs, NSTAR Electric will absorb these costs. From the  
12 perspective of a competitor interested in the green market during 2004, the effect  
13 is the same as deferring these costs: NSTAR Green would be an equally large  
14 barrier to entry if priced below cost.

15 **Q. And what would likely happen if the true cost of NSTAR Green were**  
16 **reflected in the product price?**

17 A: If all costs are appropriately included in the NSTAR Green rate and not assessed  
18 to non-participants or standard offer, default service or distribution company  
19 rates, and if other barriers to entry were mitigated (as I will discuss later), so that  
20 the price is set at a realistic competitive benchmark, I expect that others would be  
21 happy to enter the market and compete. In this case NSTAR would be providing  
22 a benchmark and raising visibility without providing barriers, which would be  
23 conducive to market expansion. However, if my estimates turn out to be in the

1 right order of magnitude, I suspect putting forth a product in too high a price  
2 range would sour the market not just for NSTAR but for others as well.

3

4 **V. ASSERTIONS THAT NSTAR GREEN IS CRAFTED ON INDUSTRY BEST**  
5 **PRACTICES, AND WILL BE MORE SUCCESSFUL THAN THE**  
6 **NATIONAL GRID MODEL, ARE NOT WELL FOUNDED**  
7

8 **Q: Is there any precedent for an approach comparable to what NSTAR has**  
9 **proposed?**

10 A: No. There is no precedent for a regulated green pricing program by a regulated  
11 distribution utility in a competitive market. This model has never been pursued in  
12 a market with retail choice. I would not want to suggest that a lack of precedent,  
13 by itself, is a reason not to do something, *if* a reasonable business plan suggests  
14 that there are benefits reasonably expected to be achievable that are worth the  
15 risks.

16 **Q: What does your examination of industry experience tell you about the likely**  
17 **success of the program NSTAR has proposed?**

18 A: NSTAR relies heavily on its exploration of green pricing programs in monopoly  
19 utility territories as the basis for the motivation and design of NSTAR Green. Yet  
20 a closer look at this experience suggests that NSTAR has very little in common  
21 with the utilities that have had the greatest success, and NSTAR Green has little  
22 in common with the most successful programs.

23 **Q: Please explain.**

24 A: Exhibit RCG-11 contains two green pricing “top ten” lists compiled by the  
25 National Renewable Energy Labs through the end of 2002 (the most recent

1 comprehensive data available): the top ten programs for Total Number of  
2 Customer Participants, and the top ten programs for green power Customer  
3 Participation Rate. Some observations on these statistics:

4

5 1. Of the top ten in customer participation rate (penetration), nine are offered  
6 by public power entities, either municipal utilities or cooperatives. There  
7 are fundamental differences in the credibility, motivation, appeal and  
8 economics associated with municipal or consumer-owned utilities, and  
9 particularly with the perceptions by customers whose interests are far  
10 more aligned with their owners. While the debate of the relative merits of  
11 public versus private power goes back a long way, a significant advantage  
12 appears to accrue to green power sellers acting unambiguously in their  
13 customer's own interest. While there has been little experience so far to  
14 test this hypothesis in competitive markets, in my opinion this advantage  
15 would appear far more likely to accrue to the Compact and Mass Energy  
16 than to NSTAR.

17 2. These programs only achieve penetrations of 3-6% after undertaking  
18 significant marketing expenditures on sophisticated marketing campaigns  
19 over the course of several years. In contrast, NSTAR claims it will take a  
20 minimalist approach to marketing, with costs too small to matter.

21 3. All of these programs featured specifically identifiable and local supply  
22 sources, and centered their offerings on long-term commitments (either  
23 contract or ownership).

- 1           4. Virtually all of top 10 programs offer a 100% product or option.
- 2           5. The only investor-owned utility in the top ten penetration, Madison Gas &
- 3           Electric at 3.6%, started its program in 1999, committed long-term to
- 4           specific local resources, and marketed the program aggressively.
- 5           6. Among the largest programs measured in numbers of customers, the three
- 6           highest ranked investor owned utilities are Xcel Energy (#2), with the two
- 7           Oregon programs in PacifiCorp and Portland General Electric ranked #3
- 8           and #4, respectively. An examination of the previous year's top ten report
- 9           indicates that these three programs have been rapidly growing. All of the
- 10          other investor-owned utilities on the list are located in Wisconsin.

11   **Q:   What can be learned from these leading investor-owned utility green pricing**

12       **programs?**

13   A:   Several observations are instructive and further illustrate the limitations of

14       NSTAR Green. First, the IOU green pricing program with the most customers,

15       XCEL Energy, is widely considered a solid program that has been emulated

16       elsewhere. It features a 100% focus on new wind energy from specific, local

17       wind farms in which it has made a long-term commitment. It also has what has

18       been considered one of the best marketing campaigns, in which it has invested

19       significantly, and market success has been greatly enhanced through a marketing

20       partnership with the non-profit Land and Water Fund of the Rockies.

21

22       The next two programs are the relatively new but very rapidly growing Oregon

23       utility programs, which have featured three choices each, and have included

1 products crafted both by the utilities and a third party marketer that were  
2 marketed co-operatively. While in place for only two years, these programs have  
3 grown to the point where, based on statistics on the Oregon PUC Web site, they  
4 look likely to break the top ten penetration list when 2003 statistics are available:  
5 PGE reports 26,862 customers, a 3.6% penetration, while PacifiCorp reports  
6 15,229 customers, a 3% penetration. The remaining Wisconsin utilities are  
7 benefiting from their long-term contracts with new renewables (mostly wind)  
8 resulting in a substantial over-compliance with their RPS obligations.

9

10 **Q: Are there other innovative features that you would like to address?**

11 A: One area that has shown real promise and is attracting considerable attention is  
12 the crafting of green pricing programs to take advantage of the fact that renewable  
13 generation costs do not fluctuate with fossil fuel prices, and thus their purchase, if  
14 so structured, can serve as a hedge against price volatility and cost increases  
15 driven by fossil fuel prices. At least two of the programs in the top ten lists that I  
16 am aware of, Austin Energy and Eugene Water and Electric Board, feature  
17 structures that insulate customers from price volatility. Customers are exempt  
18 from exposure to fuel clause increases, and their cost premium has gone down as  
19 prices have risen. Mass Energy's focus groups and other market research clearly  
20 found support for fixed price green power options. In my opinion, tapping this  
21 characteristic of renewable energy is likely to increase customer interest  
22 substantially.

23

1 I also note that NSTAR has not followed design features suggested by its own  
2 market research that fit well with these observations, including interest in choices  
3 of different mixes, local and identifiable resources (see the Brown Marketing  
4 Research report in NSTAR's response to CLC/MEC Information Request1-  
5 3(supp) at 60).

6 **Q. Does NSTAR have any empirical or other basis for concluding that its**  
7 **program can approach industry-best penetrations?**

8 A: In an October article in the Boston Herald, NSTAR's Penni Conner was quoted  
9 saying that over time, 3-5% of NSTAR customers will participate in NSTAR  
10 Green. In a presentation on NSTAR Green included in its response to CLC/MEC  
11 Information Request1-3(supp) at 646, NSTAR states "we expect NSTAR Green  
12 to be a very successful program for our customers," noting similar programs  
13 average 1% participation, and the most successful have 3-5% penetration.  
14 Ignoring for a moment the small number of certificates available, NSTAR has not  
15 provided *any* basis to support an expectation that this program will be particularly  
16 successful when measured against others, or that it will be more successful than  
17 the GreenUp program. NSTAR Green has almost nothing in common with the  
18 most successful utility green pricing programs.

19 **VI. THE RELATIVE PROSPECTS FOR SUCCESS FOR PROGRAMS WITH**  
20 **COMPETITIVE REC PROGRAMS OFFERED ON THE UTILITY BILL**  
21

22 **Q: Given industry experience, what constitutes a successful green pricing**  
23 **program in your opinion?**

1 A: Success of a program is not solely determined by percentage market penetration.  
2 Rather, it must balance customer penetration, low customer acquisition costs,  
3 sustainability of demand in the absence of long-term market intervention (or  
4 success in market transformation), and the quantity of incremental renewable  
5 energy supported. All else being equal, if comparing two programs that have  
6 similar penetrations and assuming similar cost of renewable supply, product  
7 content, and supply availability, the one that has far lower customer acquisition  
8 costs is more successful— that is, it has succeeded in finding more cost-effective  
9 ways of reaching prospects and converting them into long-term customers, is  
10 likely to have lower prices and greater prospects for sustainable market  
11 transformation at higher levels of penetration.

12 **Q: How do utility programs that provide billing and collections for RECs**  
13 **offered via third parties rate in terms of success among green pricing and**  
14 **marketing programs?**

15 A: NSTAR has inferred that programs of this type, such as the program currently  
16 operated in the Niagara Mohawk service territory in New York, and the GreenUp  
17 program offered by the Massachusetts Electric Company, are unsuccessful  
18 compared to other approaches, and are weak programs not worth building upon.  
19 This position is not well-founded. On the contrary, they are viewed by many as  
20 innovative, and among the fastest growing programs in investor-owned utility  
21 service territories and in competitive electric marketplaces for mass markets.

22 **Q: Please summarize industry experience with this type of program and its**  
23 **variants.**

1     A:     So far, there are only a few variations of what I refer to as competitive green  
2           pricing programs in place, and these programs are very recent.   However, this  
3           approach is gaining favor, particularly in competitive markets.   These programs  
4           allow RECs provided by competing marketers (and in at least one case the utility  
5           side-by-side with a third party marketer) to be bundled with commodity supply  
6           sourced by the distribution utility. Billing and collection services provided by the  
7           distribution utilities are the most important feature.   Perhaps the second-most  
8           important feature is some form of marketing relationship (or partnership) between  
9           the REC provider and the utility.   This relationship can range from an active  
10          marketing partnership to a more passive approach like the ballot used by National  
11          Grid subsidiaries Niagara Mohawk (NiMo) and Mass. Electric.

12  
13          The Oregon model was the first variant.   Established as a result of legislation as a  
14          substitute for retail choice for small customers, the programs operated by Portland  
15          General Electric (PGE) and Pacificorp's Pacific Power and Light (PP&L) have  
16          featured three choices each.   They included products crafted both by the utilities  
17          and a third party marketer selected competitively and were marketed co-  
18          operatively.   As noted earlier, these fast growing programs have rapidly climbed  
19          towards the top of IOU programs in terms of total numbers of customers.   Each is  
20          closing in on the top ten in penetration rates, the top three in penetration in  
21          investor-owned utility territory.   The latest numbers put penetration at 3.6% for  
22          PGE and 3.0% for PP&L.

23



1 More recently, and closer to home, NiMo instituted its program a bit more than a  
2 year ago. This program features a ballot with four marketers with at least one  
3 product offering each, and different ballots and offerings for residential and small  
4 commercial customers. Products have high renewable and new renewable  
5 content, and most are Green-e certified. In just over a year, this program already  
6 achieved a penetration of over 9600 customers, which should place it among the  
7 top ten programs measured in total numbers of customers, when 2003 statistics  
8 become available. Three especially important aspects of this program are that (a)  
9 it has reached this penetration at low customer acquisition costs relative to  
10 customer switching, and has low overhead costs for marketers; (b) these low costs  
11 are reflected in relatively low prices relative to the cost of supply in the region,  
12 which bodes well for increased penetration; and (c) this has been achieved with  
13 negligible marketing support from the utility beyond 2 bill-stuffer ballots spaced a  
14 year apart.

15 **Q: What about the GreenUp program in MECo territory?**

16 A: In the last few months, MECo launched the GreenUp program, similar to the  
17 NiMo program in most respects (ballot, four marketers, most offerings Green-e  
18 certified). After just a few months, the program has hit a penetration of 2000 so  
19 far, which I believe is not bad for a program in a market with (a) a limited new  
20 renewables supply; (b) a patchwork territory with no single central media market;  
21 (c) far less favorable demographics than the Greater Boston area, (d) no  
22 supporting state education campaign, and (e) a negligible utility or state marketing  
23 effort (not much more than a press conference and a bill stuffer).

1   **Q:    You noted that variations of this approach are increasingly being adopted.**  
2       **Please elaborate.**

3   A:    Narragansett Electric, serving nearly all of Rhode Island, is launching the  
4       GreenUp program in April, with significant support from the Rhode Island  
5       Renewable Energy Fund. The Connecticut DPUC is in the process of  
6       implementing a legislatively mandated program in Connecticut Light and Power  
7       and United Illuminating territories, which is likely to resemble a hybrid of the  
8       Oregon and NiMo models, with several competitive branded REC suppliers,  
9       perhaps a limited number selected through utility RFPs, and billing and  
10      collections by the distribution utility. I have been told by some of the GreenUp  
11      marketers that the Long Island Power Authority (“LIPA”) is currently developing  
12      a NiMo-like program for rollout in the near future. And a green standard offer  
13      program similar to these programs is being considered in Maine as part of a  
14      broader revision of some aspects of Maine’s electric restructuring. With the  
15      exception of LIPA, these are all competitive markets in which few power supply  
16      opportunities have materialized for small customers.

17   **Q:    Why do you think this approach is increasingly popular in competitive**  
18       **markets?**

19   A:    This approach presents some key advantages over the two alternatives available to  
20      small customers in a competitive retail market environment: switching electricity  
21      suppliers to a green power marketer, or buying RECs.

22   **Q:    What are the advantages over green competitive electric supply?**

1    A:     Competitive green pricing has two significant advantages over delivered/bundled  
2           direct access green power offerings because it can be effectuated with RECs,  
3           which is a far lower cost and lower risk way of conducting business for the green  
4           power supplier than arranging for bundled delivered competitive generation  
5           supply. Additionally, having the utility involved in some manner overcomes the  
6           fear of switching suppliers that acts as a significant barrier to green choice or any  
7           competitive choice, for that matter.

8    **Q:     What are the advantages over REC supply sold directly to customers and**  
9           **billed by the REC provider?**

10   A:     Competitive green pricing has advantages over the sale of RECs independent of  
11           the electricity purchase and paid for via a separate bill. RECs offerings may have  
12           an equivalent impact from all important respects to a direct access offering, but  
13           are disconnected in the minds of customers from their electric service. This  
14           disconnect from the purchase of electricity results in the purchase decision being  
15           perceived by smaller customers as akin to a charitable contribution, rather than as  
16           a product or service purchase. As a result, there is a greater educational burden  
17           for marketers. Despite the limited experience in the nascent REC market, most  
18           observers expect mass marketed green tag products to have a lower market  
19           penetration than a product offered in association with the purchase of electricity,  
20           invoiced through the electric bill.

21   **Q:     What are the advantages of competitive green pricing over a single green**  
22           **pricing option offered by the utility?**

1 A: Competitive green pricing can be implemented to capture the benefits of  
2 competition in the absence of viable retail competition. There are at least four  
3 types of benefits. First, there is the more aggressive and better targeted marketing  
4 from experienced firms that have specialized in green power, and a more effective  
5 differentiation from conventional utility supply than could be offered by the same  
6 party (the utility) supplying the conventional power supply options. Second, the  
7 pressure of competition to offer good value for price will lead to products  
8 constantly improving on the price-quality-value continuum in my opinion.  
9 Thirdly, there is a real value of marketing in a competitive environment to raise  
10 customer awareness and reduce customer skepticism. Finally, the ability of  
11 product differentiation may appeal to a wider array of customers than a single  
12 offering.

13 **Q: Referring back to your definitions of a successful green pricing program, do**  
14 **you feel a competitive green pricing approach is likely to be successful in**  
15 **NSTAR territory?**

16 A: Yes. I believe variations on competitive green pricing this type of approach are  
17 best suited to NSTAR territory, at least in the near-term. If well-executed, it can  
18 combine the administrative ease of RECs with the connectedness of a utility green  
19 pricing program. It has shown the potential for strong and rapid market  
20 penetration compared with industry experience to date with lower customer  
21 acquisition and retention costs compared to traditional REC products sold  
22 independently of the distribution utility. The combination of these factors will  
23 increase the likelihood of sustainability of demand and support for increasing

1 quantities of new renewable by suppliers invested in the business. A competitive  
2 model is most likely to succeed at achieving high levels of penetration at  
3 reasonable customer acquisition costs. Eliminating “seams” between neighboring  
4 retail markets will allow marketers to reach critical scale economies more easily  
5 and efficiently and use cost-effective media for outreach to customers.  
6 Consumers will be able to find a product that meets their tastes, in terms of price,  
7 certificates, and type of supplier.

8 **Q: Given the uncertain future of standard offer and default service, do you see**  
9 **competitive green pricing as a sufficiently resilient approach to adopt in the**  
10 **NSTAR territory?**

11 A: Competitive green pricing serves as either a smooth transition to a possible future  
12 of competitive switching, or as a substitute means for effectively developing a  
13 green power market in the absence of effective direct access. This approach can  
14 evolve and adapt in a variety of possible scenarios; continuing on in a market with  
15 a substantial supplier of last resort role. Alternatively, in a market with no  
16 Standard Offer, or one in which large blocks of Standard Offer and Default  
17 customers are shifted to competitive electric supply, REC suppliers may shift into  
18 partnership with commodity-oriented competitive electric suppliers. If the market  
19 rapidly shifts, and if green marketers have been able to gain sufficient scale  
20 through competitive green pricing, the barriers to entry as a competitive electric  
21 supplier may even become low enough for some of these suppliers to evolve into  
22 competitive electric suppliers at that time.

23

1   **VII. EFFECTIVENESS OF NSTAR SUPPLY PROCUREMENT IN**  
2   **SUPPORTING OR ENCOURAGING NEW RENEWABLE SUPPLY.**

3   **Q: Do you believe NSTAR has procured GIS certificates for this program**  
4   **effectively?**

5   A: No, because NSTAR sought to buy too short-term, too late, and in a manner  
6   where its RFP sought to put an uncontrollable quantity risk for scarce generation  
7   sources on its supplier. A great many of the parties they contacted to buy from  
8   were short relative to their own needs. Related to NSTAR shopping short-term, it  
9   contacted few if any renewable generators when looking for supply. NSTAR's  
10   approach to procuring renewable supply shows a lack of understanding of the  
11   market relative to those firms specializing in renewables. Furthermore, NSTAR  
12   did not take advantage of the one substantial supply-side competitive advantage  
13   held by NSTAR: its ability to enter into long-term contracts with substantially-  
14   sized generators whose investors will consider it creditworthy enough for  
15   financing. It was no surprise to me that NSTAR's solicitation was not successful  
16   in securing significant quantities or a good price.

17  
18   The bottom line is that new renewables are not getting built today in New  
19   England without some long-term contracts with creditworthy entities, and it will  
20   most likely continue that way until the market and investors have gained  
21   confidence in the long-term renewable energy market.

22   **Q: Is the cost of renewables related to the length of contract and the**  
23   **creditworthiness of the buyer?**

1 A: In my experience, longer-term contracts can yield lower prices to the buyer.

2 **VIII. RECOMMENDATIONS AND CONCLUSIONS**

3 **Q: What is your recommendation for the Department in this proceeding?**

4 A: The fact that NSTAR voluntarily offered to implement a green program must,  
5 despite my critique, be considered a positive step. However, for the reasons I  
6 have outlined in this testimony, the Department should reject NSTAR's filing as  
7 proposed and modified during the course of this proceeding. The Department  
8 should instead, after providing some principles as guidance, request that NSTAR,  
9 the Compact, Mass Energy, and other interested parties commence a stakeholder  
10 discussion. This discussion should be aimed at creating a substitute program that  
11 can fairly meet the needs of the market participants as well as NSTAR. It should  
12 be consistent with the competitive electricity market structure in Massachusetts  
13 Restructuring Act, Department precedent, and the recommendations that I have  
14 provided in this testimony.

15 **Q: Why is that your conclusion?**

16 A: I summarize my testimony by offering the following reasoning for this  
17 recommendation. The Department should rule as I have recommended because:  
18 ?? NSTAR's filing, if approved, would accrue to NSTAR unfair and unwarranted  
19 advantages of incumbency;  
20 ?? NSTAR has not offered improvement upon programs currently in place in the  
21 Commonwealth;  
22 ?? Approval would create or exacerbate barriers to entry in the green power  
23 market;

1        ?? The filing does not take sufficient heed of lessons learned from a significant  
2        base of industry experience;  
3        ?? The program as proposed would balkanize the market in a manner that  
4        undermines the effectiveness of approaches taken in neighboring service  
5        territories and neighboring states;  
6        ?? The offering is not cost-effective relative to alternatives if all costs are  
7        counted; and  
8        ?? The approach does little to support the development of new renewable energy  
9        generation sources.

10    **Q:    Do you have any recommendations to the Department for guiding principles**  
11        **for such a stakeholder discussion?**

12    A:    In order to mitigate the barriers to entry discussed above, the Department should  
13        consider some of the following suggestions.

14        ?? Eliminate the advantages of incumbency associated with using the NSTAR  
15        brand. This might be accomplished by not using the brand, branding to cover  
16        a suite of independent offerings, and through use of distribution company  
17        personnel and brochures such as energy efficiency materials in support of  
18        such a program for any interested supplier.

19        ?? Provide all green power offerings to NSTAR customers with equivalent  
20        visibility.

21        ?? While a GreenUp-style ballot is not necessary, provide access to NSTAR  
22        billing and collection services combined with the above. This is assured for  
23        competitive electric supply. But to have a level playing field, marketers of



1 NEPOOL GIS certificates would also need access to this service (as in  
2 GreenUp). This is necessary to allow marketers to achieve reasonable  
3 customer acquisition costs and reach viable scale.

4 ?? Provide customer education. This would include outreach to raise awareness  
5 of renewable power and the types of choices available, in which NSTAR  
6 would explain not just the renewable energy value proposition to customers.

7 **Q. Do you believe, as NSTAR has suggested, that there is value to “trying a**  
8 **different approach”?**

9 A: Absolutely. But new approaches should build upon lessons learned and best  
10 practices, as well as allow for economies of scale and scope that are so critical to  
11 make any effort financially viable. Such an approach must be consistent with the  
12 legal and regulatory market structure, and have some hope for improvement in  
13 one or more of the several metrics of success I have identified (not improve from  
14 one perspective at the expense of others).

15

16 Trying a different approach should not mean trying an approach unsupported by  
17 evidence that it holds untapped promise to outpace other more familiar models.  
18 Our society only experiments when there is an upside.

19 **Q: Does this conclude your testimony?**

20 A: Yes, it does.

## **Exhibits**

Exhibit RCG-1:	Resume of Robert C. Grace
Exhibit RCG-2:	Qualifications Summary – Robert C. Grace
Exhibit RCG-3:	Presentations, Lectures and Testimony - Robert C. Grace
Exhibit RCG-4:	Select List of Publications & Reports – Robert C. Grace
Exhibit RCG-5:	Bottom-Up NSTAR Green Cost Estimate -- Base Case
Exhibit RCG-6:	Bottom-Up NSTAR Green Cost Estimate – Sensitivity #1
Exhibit RCG-7:	Bottom-Up NSTAR Green Cost Estimate – Sensitivity #2
Exhibit RCG-8:	Bottom-Up NSTAR Green Cost Estimate – Sensitivity #3
Exhibit RCG-9:	Bottom-Up NSTAR Green Cost Estimate – Sensitivity #4
Exhibit RCG-10:	Bottom-Up NSTAR Green Cost Estimate – Sensitivity #5
Exhibit RCG-11:	Top Ten Utility Green Pricing Programs